

Forestland Interpretations

Forestland interpretations are important to good management. The management of trees begins with an understanding of the soil where they grow or are to be grown. Some soils are very suitable for growing wood crops; others barely support tree cover. Different tree species may vary in production on the same soil.

Forestland interpretations should be used to assist land users in planning, installing, and maintaining forestland management systems.

Forest Management and Productivity

The Forestland Management and Productivity tables presents information about suitable for producing timber for each soil map unit. Management concerns, which include hand planting, mechanical planting, use of harvesting equipment, mechanical site preparation (surface), roads (natural surface), erosion on roads and trails, off-road/trail erosion, soil rutting, log landings, seedling survival, are listed by ratings of:

- Not Limited (0.00)
- Slightly Limited (0.01 to 0.30)
- Moderately Limited (0.31 to 0.60)
- Limited (0.61 to 0.99)
- Very Limited (1.00)

Information on potential productivity includes plant competition, common trees, site index, productivity class, and trees to plant.

Management Concerns

PLANT COMPETITION - A rating of slight indicates little or no competition from other plants; moderate indicates that plant competition is expected to hinder the development of the fully stocked stand of desirable trees; and severe means that plant competition is expected to prevent the establishment of a desirable stand unless the site is intensively prepared, weeded, or otherwise managed for the control of undesirable plants.

POTENTIAL PRODUCTIVITY - This is discussed under the ordination class symbol.

COMMON TREES - Trees that generally occur on the soil are listed regardless of economic importance.

SITE INDEX AND PRODUCTIVITY CLASS - These are discussed under ordination class symbol.

TREES TO PLANT - Trees that are suitable for commercial wood production and that are adapted to the soil.

HAND PLANTING – ratings are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, a water table, and ponding. Ratings indicate the expected difficulty of hand planting, which includes the proper placement of root systems of tree seedlings to a depth of up to 12 inches, using standard hand planting tools. It is assumed that necessary site preparation is completed before seedlings are planted.

MECHANICAL PLANTING – ratings are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, a water table, and ponding. Ratings indicate the expected difficulty using a mechanical planter, which includes proper placement of root systems of tree seedlings to a depth up to 12 inches. It is assumed that necessary site preparation is completed before seedlings are planted.

USE OF HARVEST EQUIPMENT – ratings are based on slope, rock fragments on the surface, plasticity index, content of sand, surface texture, a water table, and ponding. Ratings indicate the suitability for operating harvest equipment for off-road transport or harvest of logs and/or wood products by ground-based wheeled or tracked equipment.

MECHANICAL SITE PREPARATION (SURFACE) – ratings are based on slope, depth to a restrictive layer, plasticity index, rock fragments on or below the surface, a water table, and ponding. The part of the soil from the surface to a depth of about 12 inches is considered in the ratings. Ratings indicate the suitability of using surface-altering soil tillage equipment to prepare the site for planting or seeding.

ROADS (NATURAL SURFACE) – ratings are based on slope, rock fragments on the surface, plasticity index, content of sand, surface texture, a water table, ponding, flooding, and the hazard of soil slippage. The ratings indicate the suitability for using the natural surface of the soil for roads on which trucks transport logs and other wood products from the site.

EROSION (ROAD/TRAIL) – ratings are based on the soil erodibility factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails.

EROSION (OFF-ROAD/OFF-TRAIL) – ratings are based on slope and on soil erodibility factor K. The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by logging, grazing, mining, or other kinds of disturbance.

SOIL RUTTING – ratings are based on a water table, rock fragments on or below the surface, surface texture, depth to a restrictive layer, and slope. Ratings indicate the hazard or risk of ruts in the uppermost soil surface layers by operation of forest equipment. Soil displacement and puddling (soil deformation and compaction) may occur simultaneously with rutting.

LOG LANDINGS – ratings are based on slope, rock fragments on the surface, plasticity index, content of sand, surface texture, a water table, ponding, flooding, and the hazard of soil slippage. Ratings indicate the suitability of the soil at the forest site to serve as a log landing and allows the efficient and effective use of equipment for the temporary storage and handling of logs.

SEEDLING SURVIVAL – ratings are based on flooding, ponding, a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. Ratings indicate the impact of soil, physiographic, and climatic conditions on the survivability of newly established tree seedlings.

See the National Forestry Manual, Subpart B for criteria used in rating management concerns.

This subsection includes:

- **(a) Forest Management (one or two tables)**

Nodaway County, Missouri: Detailed Soil Map Legend

Forest Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
12E2: Gara-----	Very limited ~slope/erodibility (very limited) ~slope/erodibility (limited)	1.00 0.95	Moderately limited ~slope/erodibility (moderately limited)	0.31	Limited ~low strength (limited)	0.80	Very limited ~slope (very limited) ~low strength (moderately limited) ~stickiness (surface) (moderately limited)	1.00 0.50 0.50	Not limited	
13C2: Higginsville---	Limited ~slope/erodibility (limited) ~slope/erodibility (moderately limited)	0.78 0.50	Slightly limited ~slope/erodibility (slightly limited)	0.17	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.15	Moderately limited ~low strength (moderately limited) ~slope (slightly limited) ~seasonal wetness (slightly limited)	0.50 0.15 0.15	Not limited	
14C2: Lagonda-----	Limited ~slope/erodibility (limited) ~slope/erodibility (moderately limited)	0.78 0.50	Slightly limited ~slope/erodibility (slightly limited)	0.17	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.15	Moderately limited ~low strength (moderately limited) ~stickiness (surface) (moderately limited) ~slope (slightly limited)	0.50 0.50 0.15	Not limited	
15C: Lamoni-----	Not limited		Slightly limited ~slope/erodibility (slightly limited)	0.17	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.20	Moderately limited ~low strength (moderately limited) ~stickiness (surface) (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.50 0.20	Not limited	

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Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
15D2: Lamoni-----	Very limited ~slope/erodibility (very limited) ~slope/erodibility (moderately limited)	1.00 0.50	Slightly limited ~slope/erodibility (slightly limited)	0.29	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.20	Limited ~slope (limited) ~low strength (moderately limited) ~stickiness (surface) (moderately limited)	0.76 0.50 0.50	Not limited	
16B: Sharpsburg-----	Moderately limited ~slope/erodibility (moderately limited)	0.44	Slightly limited ~slope/erodibility (slightly limited)	0.08	Limited ~low strength (limited)	0.80	Moderately limited ~stickiness (surface) (moderately limited) ~low strength (moderately limited)	0.50 0.50	Not limited	
16C: Sharpsburg-----	Limited ~slope/erodibility (limited) ~slope/erodibility (moderately limited)	0.78 0.50	Slightly limited ~slope/erodibility (slightly limited)	0.14	Limited ~low strength (limited)	0.80	Moderately limited ~stickiness (surface) (moderately limited) ~low strength (moderately limited) ~slope (slightly limited)	0.50 0.50 0.15	Not limited	
17C: Shelby-----	Limited ~slope/erodibility (limited) ~slope/erodibility (moderately limited)	0.78 0.50	Slightly limited ~slope/erodibility (slightly limited)	0.14	Limited ~low strength (limited)	0.80	Moderately limited ~low strength (moderately limited) ~slope (slightly limited)	0.50 0.15	Not limited	

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Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
17C2: Shelby-----	Limited ~slope/erodibility (limited) ~slope/erodibility (moderately limited)	0.78 0.50	Slightly limited ~slope/erodibility (slightly limited)	0.14	Limited ~low strength (limited)	0.80	Moderately limited ~low strength (moderately limited) ~stickiness (surface) (moderately limited) ~slope (slightly limited)	0.50 0.50 0.15	Not limited	
17D: Shelby-----	Very limited ~slope/erodibility (very limited) ~slope/erodibility (moderately limited)	1.00 0.50	Slightly limited ~slope/erodibility (slightly limited)	0.24	Limited ~low strength (limited)	0.80	Limited ~slope (limited) ~low strength (moderately limited)	0.76 0.50	Not limited	
17D2: Shelby-----	Very limited ~slope/erodibility (very limited) ~slope/erodibility (moderately limited)	1.00 0.50	Slightly limited ~slope/erodibility (slightly limited)	0.24	Limited ~low strength (limited)	0.80	Limited ~slope (limited) ~low strength (moderately limited) ~stickiness (surface) (moderately limited)	0.76 0.50 0.50	Not limited	
17E2: Shelby-----	Very limited ~slope/erodibility (very limited) ~slope/erodibility (limited)	1.00 0.95	Moderately limited ~slope/erodibility (moderately limited)	0.39	Limited ~low strength (limited)	0.80	Very limited ~slope (very limited) ~low strength (moderately limited) ~stickiness (surface) (moderately limited)	1.00 0.50 0.50	Not limited	

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Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
18C2: Clarinda-----	Not limited		Slightly limited ~slope/erodibility (slightly limited)	0.17	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.20	Moderately limited ~stickiness (surface) (moderately limited) ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.50 0.20	Not limited	
19B: Macksburg-----	Moderately limited ~slope/erodibility (moderately limited)	0.44	Slightly limited ~slope/erodibility (slightly limited)	0.08	Limited ~low strength (limited)	0.80	Moderately limited ~low strength (moderately limited) ~stickiness (surface) (moderately limited)	0.50 0.50	Not limited	
20C2: Ladoga-----	Limited ~slope/erodibility (limited) ~slope/erodibility (moderately limited)	0.78 0.50	Slightly limited ~slope/erodibility (slightly limited)	0.14	Limited ~low strength (limited)	0.80	Moderately limited ~low strength (moderately limited) ~slope (slightly limited)	0.50 0.15	Not limited	
25C: Pershing-----	Limited ~slope/erodibility (limited) ~slope/erodibility (moderately limited)	0.78 0.50	Slightly limited ~slope/erodibility (slightly limited)	0.17	Limited ~low strength (limited)	0.80	Moderately limited ~low strength (moderately limited) ~slope (slightly limited)	0.50 0.15	Not limited	
40E: Vanmeter-----	Very limited ~slope/erodibility (very limited) ~slope/erodibility (limited)	1.00 0.95	Limited ~slope/erodibility (limited)	0.66	Limited ~low strength (limited)	0.80	Very limited ~slope (very limited) ~low strength (moderately limited)	1.00 0.50	Not limited	

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Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
56B: Olmitz-----	Moderately limited ~slope/erodibility (moderately limited)	0.44	Slightly limited ~slope/erodibility (slightly limited)	0.08	Limited ~low strength (limited)	0.80	Moderately limited ~low strength (moderately limited)	0.50	Not limited	
57: Wiota-----	Slightly limited ~slope/erodibility (slightly limited)	0.11	Slightly limited ~slope/erodibility (slightly limited)	0.02	Limited ~low strength (limited)	0.80	Moderately limited ~low strength (moderately limited)	0.50	Not limited	
58: Nevin-----	Slightly limited ~slope/erodibility (slightly limited)	0.11	Slightly limited ~slope/erodibility (slightly limited)	0.02	Limited ~low strength (limited)	0.80	Moderately limited ~low strength (moderately limited)	0.50	Not limited	
59: Bremer-----	Slightly limited ~slope/erodibility (slightly limited)	0.11	Slightly limited ~slope/erodibility (slightly limited)	0.02	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.29	Limited ~stickiness (surface) (limited) ~flooding (moderately limited) ~low strength (moderately limited)	0.75 0.60 0.50	Moderately limited ~flooding (moderately limited)	0.60
90: Udorthents----	Not limited		Not limited		Not limited		Limited ~slope (limited) ~very sandy (surface) (moderately limited)	0.99 0.50	Not Rated Not Rated	
Pits-----	Not rated		Not rated		Not rated		Not rated		Not rated	

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Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
99A: Colo-----	Not limited		Slightly limited ~slope/erodibility (slightly limited)	0.02	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.20	Very limited ~flooding (very limited) ~low strength (moderately limited) ~stickiness (surface) (moderately limited)	1.00 0.50 0.50	Limited ~flooding (limited)	0.90
100: Colo-----	Slightly limited ~slope/erodibility (slightly limited)	0.11	Slightly limited ~slope/erodibility (slightly limited)	0.02	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.20	Moderately limited ~flooding (moderately limited) ~low strength (moderately limited) ~stickiness (surface) (moderately limited)	0.60 0.50 0.50	Moderately limited ~flooding (moderately limited)	0.60
101: Nodaway-----	Not limited		Slightly limited ~slope/erodibility (slightly limited)	0.02	Limited ~low strength (limited)	0.80	Moderately limited ~flooding (moderately limited) ~low strength (moderately limited)	0.60 0.50	Moderately limited ~flooding (moderately limited)	0.60
104: Zook-----	Slightly limited ~slope/erodibility (slightly limited)	0.11	Slightly limited ~slope/erodibility (slightly limited)	0.02	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.20	Moderately limited ~flooding (moderately limited) ~stickiness (surface) (moderately limited) ~low strength (moderately limited)	0.60 0.50 0.50	Moderately limited ~flooding (moderately limited)	0.60

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Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
105: Kennebec-----	Not limited		Slightly limited ~slope/erodibility (slightly limited)	0.02	Limited ~low strength (limited)	0.80	Very limited ~flooding (very limited) ~low strength (moderately limited)	1.00 0.50	Limited ~flooding (limited)	0.90
M-W: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
W: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	